ConchaTherm® IV
ConchaTherm® IV Plus
Diagnostic Tests

1. Conduct test in a setting with ambient room temperature between 68 to 78°F. Avoid testing under ventilation outlets (heating, air conditioning ducts, etc.), near open doors or fans. Set up the unit with a full reservoir bottle ready for normal operation. Insert a new Concha column into the heater. Connect the column tubings to the reservoir bottle. Open the tubing clamps on the column and gently squeeze the reservoir bottle to initiate water flow into the column.

2. Provide 10 LPM continuous, dry air to one of the ports at the top of the column.

   NOTE: Go to step 3 of section A, B, or C, as applicable.

A. HEATED-WIRE ADULT APPLICATIONS:

3. Attach the inspiratory limb of a Hudson RCI adult heated-wire circuit to the second port on the top of the Concha column. Insert the long-cabled temperature probe into the port on the wye, at the patient end, and the short-cabled probe into the port on the elbow, at the humidifier. Connect the heated-wire pigtails from the circuit to the heated-wire cables on the humidifier. Connect blue-to-blue and yellow-to-yellow.

4. Place a digital thermometer with an accuracy of ± 1°C (or better) between the patient end of the inspiratory tubing and the inspiratory side of the wye; and place a digital thermometer between the Concha column and the ported elbow on the inspiratory limb of the circuit (place the digital thermometers as close as possible to the ConchaTherm temperature probes to check the accuracy of the temperatures being displayed on the ConchaTherm unit). A single digital thermometer can be used to conduct this test, but allow 1-2 minutes after moving the digital probe for the system temperature to stabilize.

5. Apply power to the heater. Select Adult mode and set the temperature to 35°C and the temperature gradient to 0. Allow 20 minutes for the temperature to stabilize.

Test results should be:

- The airway temperature displayed on the ConchaTherm should be 35°C ± 2° and the Column temperature should be 35°C ± 2°.
- The words INSP. WIRE should be displayed. EXP. WIRE should be displayed if using a dual heated wire circuit.
- The temperatures read by the digital thermometer should be within ± 2°C of the temperature displayed on the ConchaTherm.
- If the heater does not pass testing, return the unit to Hudson RCI for service (see SERVICE in your operating manual).

B. HEATED-WIRE INFANT APPLICATIONS:

3. Attach the inspiratory limb of a Hudson RCI neonatal heated-wire circuit to the second port on the top of the Concha column. Insert the long-cabled temperature probe into the port in the remote temperature adapter near the patient end of the inspiratory limb and the short-cabled probe into the port on the elbow, at the humidifier. Connect the heated-wire pigtails from the circuit, to the heated-wire cables on the humidifier. Connect blue-to-blue and yellow-to-yellow.
4. Place a digital thermometer with an accuracy of ± 1°C (or better) between the patient end of the inspiratory tubing and the remote temperature port; and place a digital thermometer between the Concha column and the ported elbow on the inspiratory limb of the circuit (place the digital thermometers as close as possible to the ConchaTherm temperature probes to check the accuracy of the temperatures being displayed on the ConchaTherm unit). A single digital thermometer can be used to conduct this test, but allow 1-2 minutes after moving the digital probe for the system temperature to stabilize.
5. Apply power to the heater. Select infant mode and set the temperature to 35°C and the temperature gradient to 0. Allow 20 minutes for the temperature to stabilize.

Test results should be:

- The airway temperature displayed on the ConchaTherm should be 35°C ± 2° and the Column temperature should be 35°C ± 2°.
- The words INSP. WIRE should be displayed. EXP. WIRE should be displayed if using a dual heated wire circuit.
- The temperatures read by the digital thermometer should be within ± 2°C of the temperature displayed on the ConchaTherm.
- If the heater does not pass testing, return the unit to Hudson RCI for service (see SERVICE in your operating manual).

C. NON-HEATED-WIRE APPLICATIONS:

3. Attach the inspiratory limb of a 72" circuit to the second port on the top of the Concha column. Insert the long-cabled temperature probe into the port on the wye at the patient end and the short-cabled probe into the port on the elbow at the humidifier.
4. Place a digital thermometer with an accuracy of ± 1°C (or better) between the patient end of the inspiratory tubing and the inspiratory side of the wye (place the digital thermometer as close as possible to the ConchaTherm temperature probe to check the accuracy of the temperature being displayed on the ConchaTherm unit).
5. Apply power to the heater. Select Adult mode and set the temperature to 35°C. Allow 30 minutes for the temperature to stabilize.

Test results should be:

- The airway temperature displayed on the ConchaTherm should be 35°C ± 2°.
- INSP. WIRE and EXP. WIRE will NOT be displayed.
- The temperature read by the digital thermometer should be within ± 2°C of the temperature displayed on the ConchaTherm.
- If the heater does not pass testing, return the unit to Hudson RCI for service (see SERVICE in your operating manual).

HIGH-TEMPERATURE ALARM LIMIT TEST

To verify that the High Temperature Alarm Limit is functioning, the operator may use the following test:

1. Select a desired functional test set-up from the options above, and complete steps 1 through 5 as outlined for that test.

2. Prepare a warm water solution that will maintain a temperature of
   ≥ 40.5°C for 400-00 or
   ≥ 41.5°C for 400-50

3. Remove the temperature probe from the patient end of the circuit and place the probe into the container of water.

Test results should be:

- The unit will alarm when the airway temperature display reaches
  40.5°C (+/- 0.5°C) for 400-00
  41.5°C (+/- 0.5°C) for 400-50

NOTE: (There may be a short time delay in the triggering of the alarm as the unit confirms the high temperature condition.)

- For the 400-00, the words HIGH TEMP will appear on the LCD panel and the red alarm LED will flash in conjunction with audible notification.
- For the 400-50, the words HIGH TEMP will appear on the LCD panel and the yellow alarm LED will flash in conjunction with audible notification.
- If the heater does not pass testing, return the unit to Hudson RCI for service (see SERVICE in your operating manual).